

**ABSTRACT OF THE DISCLOSURE**

In a plasma treatment method of and apparatus for treating the surface of a treatment target substrate by utilizing glow discharge produced by supplying  
5 high-frequency power into an inside-evacuated reactor through a high-frequency power supply means, a plurality of impedance regulation means for regulating impedances on the side of the reactor and on the side of the high-frequency power supply means are provided  
10 correspondingly to the impedances of a plurality of reactors, and the high-frequency power is supplied into the reactors via the impedance regulation means corresponding to the reactors. Plasma treatment can be made in a good efficiency and a low cost on a plurality  
15 of reactors having different impedances.